#### (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

### (19) World Intellectual Property Organization

International Bureau



## 

#### (43) International Publication Date 19 May 2005 (19.05.2005)

#### **PCT**

**English** 

# (10) International Publication Number WO 2005/044173 A1

(51) International Patent Classification<sup>7</sup>: A61J 1/03, A61M 15/00, B65D 75/36, B65B 5/10

(21) International Application Number:

PCT/US2004/035433

(22) International Filing Date: 26 October 2004 (26.10.2004)

(25) Filing Language: English

(26) Publication Language:

(30) Priority Data:

60/514,733 27 October 2003 (27.10.2003) 60/605,484 30 August 2004 (30.08.2004)

(71) Applicant (for all designated States except US): ORIEL THERAPEUTICS, INC. [US/US]; 630 Davis Drive, Suite

THERAPEUTICS, INC. [US/US]; 630 Davis Drive, Suite 120, Durham, NC 27713 (US).

(72) Inventors; and

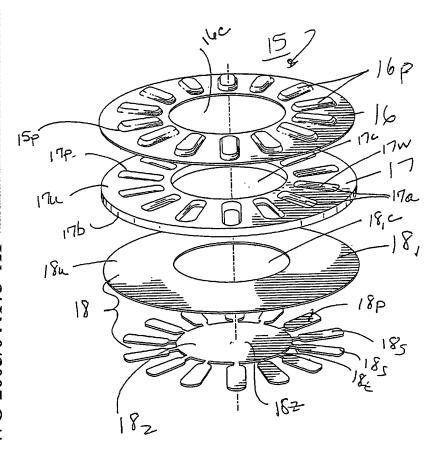
(75) Inventors/Applicants (for US only): CROWDER,

Timothy [US/US]; 4208 Thetford Road, Durham, NC 27707 (US). WARDEN, Jeffrey, Alan [US/US]; 12213 Dunard St., Raleigh, NC 27614 (US). KETNER, Mark, Ennis [US/US]; 3828 Doeskin Drive, Apex, NC 27539 (US). JOHNSON, Keith, Arthur [US/US]; 3959 Bristol Road, Durham, NC 27707 (US). ANDERSON, Sean, Derek [US/US]; 9222 Hollbrook Drive, Richmond, VA 23229 (US). FERRIS, Bruce, Seymour [US/US]; 117 N. Lombardy Street, Richmond, VA 23220 (US). RILEY, William, Myles [US/US]; 2901 Stonebriar Place, Richmond, VA 23233 (US). ROCKWELL, Paul, Gilbert [US/US]; 4718 Conestoga Place, Chesterfield, VA 23232 (US).

- (74) Agent: RICHARDSON, Julie, H.; Myers Bigel Sibley & Sajovec, P.A., P.O. Box 37428, Raleigh, NC 27627 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,

[Continued on next page]

(54) Title: BLISTER PACKAGES AND ASSOCIATED METHODS OF FABRICATING DRY POWDER DRUG CONTAIN-MENT SYSTEMS



(57) Abstract: Dry powder blister packages include sealed blisters that incorporate or cooperate with a piezoelectric active layer that flexes to vibrate the dry powder in a blister to facilitate active dispersion.

WO 2005/044173 A1



CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,

FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### **Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.